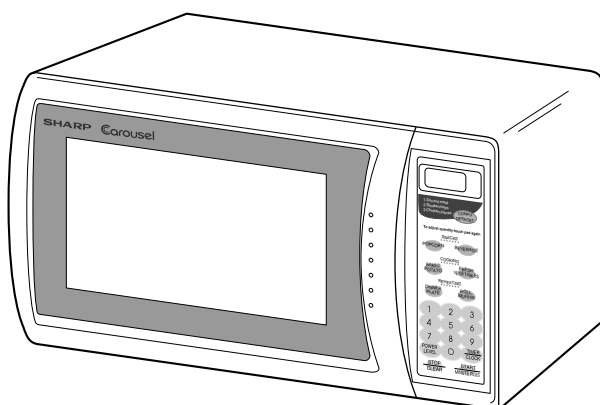


SHARP SERVICE MANUAL

S2804R230BPW/

MICROWAVE OVEN

MODELS **R-230BK** **R-230BW**



In the interest of user-safety the oven should be restored to its original condition and only parts identical to those specified should be used.

WARNING TO SERVICE PERSONNEL: Microwave ovens contain circuitry capable of producing very high voltage and current, contact with following parts may result in a severe, possibly fatal, electrical shock. (High Voltage Capacitor, High Voltage Power Transformer, Magnetron, High Voltage Rectifier Assembly, High Voltage Harness etc..)

This is a supplemental Service Manual for Models R-230BK and R-230BW. The R-230BK and R-230BW are quite similar to base model R-220BW. Use this supplemental manual together with the Base Model Service Manual (Refer No. is S1803R220BPW/) for complete operation, service information, etc..

TABLE OF CONTENTS

| | Page |
|---|--------------------|
| PRECAUTIONS TO BE OBSERVED BEFORE AND DURING SERVICING TO | |
| AVOID POSSIBLE EXPOSURE TO EXCESSIVE MICROWAVE ENERGY | INSIDE FRONT COVER |
| BEFORE SERVICING | INSIDE FRONT COVER |
| WARNING TO SERVICE PERSONNEL | 1 |
| MICROWAVE MEASUREMENT PROCEDURE | 2 |
| FOREWORD AND WARNING | 3 |
| PRODUCT SPECIFICATIONS | 4 |
| GENERAL INFORMATION | 5 |
| SCHEMATIC DIAGRAM | 5 |
| TROUBLESHOOTING GUIDE | 6 |
| TEST PROCEDURE | 6 |
| PICTORIAL DIAGRAM | 7 |
| CONTROL PANEL CIRCUIT | 8 |
| PARTS LIST | 9 |
| PACKING AND ACCESSORIES | 11 |

SHARP CORPORATION

This document has been published to be used for after sales service only.
The contents are subject to change without notice.

PRECAUTIONS TO BE OBSERVED BEFORE AND DURING SERVICING TO AVOID POSSIBLE EXPOSURE TO EXCESSIVE MICROWAVE ENERGY

- (a) Do not operate or allow the oven to be operated with the door open.
- (b) Make the following safety checks on all ovens to be serviced before activating the magnetron or other microwave source, and make repairs as necessary: (1) interlock operation, (2) proper door closing, (3) seal and sealing surfaces (arcing, wear, and other damage), (4) damage to or loosening of hinges and latches, (5) evidence of dropping or abuse.
- (c) Before turning on microwave power for any service test or inspection within the microwave generating compartments, check the magnetron, wave guide or transmission line, and cavity for proper alignment, integrity, and connections.
- (d) Any defective or misadjusted components in the interlock, monitor, door seal, and microwave generation and transmission systems shall be repaired, replaced, or adjusted by procedures described in this manual before the oven is released to the owner.
- (e) A microwave leakage check to verify compliance with the Federal Performance Standard should be performed on each oven prior to releasing oven to the owner.

BEFORE SERVICING

Before servicing an operative unit, perform a microwave emission check as per the Microwave Measurement Procedure outlined in this service manual.

If microwave emissions level is in excess of the specified limit, contact SHARP ELECTRONICS CORPORATION immediately @1-800-237-4277.

If the unit operates with the door open, service person should 1) tell the user not to operate the oven and 2) contact SHARP ELECTRONICS CORPORATION and Food and Drug Administration's Center for Devices and Radiological Health immediately.

Service personnel should inform SHARP ELECTRONICS CORPORATION of any certified unit found with emissions in excess of $4\text{mW}/\text{cm}^2$. The owner of the unit should be instructed not to use the unit until the oven has been brought into compliance.

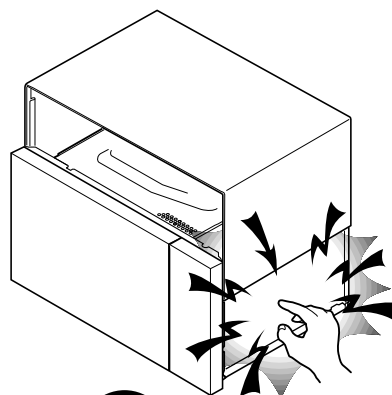
WARNING TO SERVICE PERSONNEL

Microwave ovens contain circuitry capable of producing very high voltage and current, contact with following parts may result in a severe, possibly fatal, electrical shock.

(Example)

High Voltage Capacitor, High Voltage Power Transformer, Magnetron, High Voltage Rectifier Assembly, High Voltage Harness etc..

Read the Service Manual carefully and follow all instructions.



**Don't Touch !
Danger High Voltage**

Before Servicing



1. Disconnect the power supply cord , and then remove outer case.
2. Open the door and block it open.
3. Discharge high voltage capacitor.

WARNING: RISK OF ELECTRIC SHOCK. DISCHARGE THE HIGH-VOLTAGE CAPACITOR BEFORE SERVICING.

The high-voltage capacitor remains charged about 60 seconds after the oven has been switched off. Wait for 60 seconds and then short-circuit the connection of the high-voltage capacitor (that is the connecting lead of the high-voltage rectifier) against the chassis with the use of an insulated screwdriver.

Whenever troubleshooting is performed the power supply must be disconnected. It may in, some cases, be necessary to connect the power supply after the outer case has been removed, in this event,

1. Disconnect the power supply cord, and then remove outer case.
2. Open the door and block it open.
3. Discharge high voltage capacitor.
4. Disconnect the leads to the primary of the power transformer.
5. Ensure that the leads remain isolated from other components and oven chassis by using insulation tape.
6. After that procedure, reconnect the power supply cord.

When the testing is completed,

1. Disconnect the power supply cord, and then remove outer case.
2. Open the door and block it open.
3. Discharge high voltage capacitor.
4. Reconnect the leads to the primary of the power transformer.
5. Reinstall the outer case (cabinet).
6. Reconnect the power supply cord after the outer case is installed.
7. Run the oven and check all functions.

After repairing

1. Reconnect all leads removed from components during testing.
2. Reinstall the outer case (cabinet).
3. Reconnect the power supply cord after the outer case is installed.
4. Run the oven and check all functions.

Microwave ovens should not be run empty. To test for the presence of microwave energy within a cavity, place a cup of cold water on the oven turntable, close the door and set the power to HIGH and set the microwave timer for two (2) minutes. When the two minutes has elapsed (timer at zero) carefully check that the water is now hot. If the water remains cold carry out **Before Servicing** procedure and re-examine the connections to the component being tested.

When all service work is completed and the oven is fully assembled, the microwave power output should be checked and microwave leakage test should be carried out.

MICROWAVE MEASUREMENT PROCEDURE

A. Requirements:

- 1) Microwave leakage limit (Power density limit): The power density of microwave radiation emitted by a microwave oven should not exceed 1 mW/cm^2 at any point 5cm or more from the external surface of the oven, measured prior to acquisition by a purchaser, and thereafter (through the useful life of the oven), 5 mW/cm^2 at any point 5cm or more from the external surface of the oven.
- 2) Safety interlock switches Primary interlock relay and door sensing switch shall prevent microwave radiation emission in excess of the requirement as above mentioned, secondary interlock switch shall prevent microwave radiation emission in excess of 5 mW/cm^2 at any point 5cm or more from the external surface of the oven.

B. Preparation for testing:

Before beginning the actual measurement of leakage, proceed as follows:

- 1) Make sure that the actual instrument is operating normally as specified in its instruction booklet.

Important:

Survey instruments that comply with the requirement for instrumentation as prescribed by the performance standard for microwave ovens, 21 CFR 1030.10(c)(3)(i), must be used for testing.

- 2) Place the oven tray in the oven cavity.
- 3) Place the load of $275 \pm 15 \text{ ml}$ (9.8 oz) of tap water initially at $20 \pm 5^\circ \text{C}$ (68°F) in the center of the oven cavity.
The water container shall be a low form of 600 ml (20 oz) beaker with an inside diameter of approx. 8.5 cm (3-1/2 in.) and made of an electrically nonconductive material such as glass or plastic.
The placing of this standard load in the oven is important not only to protect the oven, but also to insure that any leakage is measured accurately.
- 4) Set the cooking control on Full Power Cooking Mode
- 5) Close the door and select a cook cycle of several minutes. If the water begins to boil before the survey is completed, replace it with 275 ml of cool water.

C. Leakage test:

Closed-door leakage test (microwave measurement)

- 1) Grasp the probe of the survey instrument and hold it perpendicular to the gap between the door and the body of the oven.
- 2) Move the probe slowly, not faster than 1 in./sec. (2.5 cm/sec.) along the gap, watching for the maximum indication on the meter.
- 3) Check for leakage at the door screen, sheet metal seams and other accessible positions where the continuity of the metal has been breached (eg., around the switches, indicator, and vents).
While testing for leakage around the door pull the door away from the front of the oven as far as is permitted by the closed latch assembly.
- 4) Measure carefully at the point of highest leakage and make sure that the highest leakage is no greater than 4 mW/cm^2 , and that the secondary interlock switch does turn the oven OFF before any door movement.

NOTE: After servicing, record data on service invoice and microwave leakage report.

SERVICE MANUAL

SHARP

MICROWAVE OVEN

R-230BK/ R-230BW

FOREWORD

This Manual has been prepared to provide Sharp Electronics Corp. Service Personnel with Operation and Service Information for the SHARP MICROWAVE OVEN, R-230BK, R-230BW.

The models R-230BK and R-230BW is quite similar to base model R-220BW (Refer No. is S1803R220BPW/).

It is recommended that service personnel carefully study the entire text of this manual and base model service manual so that they will be qualified to render satisfactory customer service.

Check the interlock switches and the door seal carefully. Special attention should be given to avoid electrical shock and microwave radiation hazard.

WARNING

Never operate the oven until the following points are ensured.

- (A) The door is tightly closed.
- (B) The door brackets and hinges are not defective.
- (C) The door packing is not damaged.
- (D) The door is not deformed or warped.
- (E) There is not any other visible damage with the oven.

Servicing and repair work must be carried out only by trained service personnel.

DANGER

Certain initial parts are intentionally not grounded and present a risk of electrical shock only during servicing. Service personnel - Do not contact the following parts while the appliance is energized; High Voltage Capacitor, Power Transformer, Magnetron, High Voltage Rectifier Assembly, High Voltage Harness; If provided, Vent Hood, Fan assembly, Cooling Fan Motor.

All the parts marked “*” on parts list are used at voltages more than 250V.

Removal of the outer wrap gives access to voltage above 250V.

All the parts marked “Δ” on parts list may cause undue microwave exposure, by themselves, or when they are damaged, loosened or removed.

SHARP ELECTRONICS CORPORATION

SHARP PLAZA, MAHWAH,
NEW JERSEY 07430-2135

PRODUCT DESCRIPTION

SPECIFICATIONS

| ITEM | DESCRIPTION |
|---|--|
| Power Requirements | 120 Volts 60 Hertz Single phase, 3 wire grounded |
| Power Consumption | 1100W / Approx. 9.5 Amperes |
| Power Output | 700 W nominal of RF microwave energy (IEC 705 Test procedure) Operating frequency 2450 MHz |
| Case Dimensions | Width 18-1/8" Height 11-3/8" Depth 14-5/8" |
| Cooking Cavity Dimensions (0.7 Cubic feet) | Width 12-3/8" Height 7-7/8" Depth 12-5/8" |
| Control Complement | Touch Control System Clock (1:00 - 12:59) Timer (0 - 99 minutes 99 seconds) Microwave Power for Variable Cooking Repetition Rate; P-HI Full power throughout the cooking time P-90 approx. 90% of FULL Power P-80 approx. 80% of FULL Power P-70 approx. 70% of FULL Power P-60 approx. 60% of FULL Power P-50 approx. 50% of FULL Power P-40 approx. 40% of FULL Power P-30 approx. 30% of FULL Power P-20 approx. 20% of FULL Power P-10 approx. 10% of FULL Power P-0 No power throughout the cooking time EXPRESS DEFROST pad MINUTE PLUS pad Instant Start pads Number selection pads TIMER / CLOCK pad POWER LEVEL pad START pad STOP/CLEAR pad |
| Oven Cavity Light | Yes |
| Safety Standard | UL Listed. FCC Authorized DHHS RULES, CFR, Title 21, Chapter 1, Subchapter J |

TROUBLESHOOTING GUIDE

Never touch any part in the circuit with your hand or an uninsulated tool while the power supply is connected.

When troubleshooting the microwave oven, it is helpful to follow the Sequence of Operation in performing the checks. Many of the possible causes of trouble will require that a specific test be performed. These tests are given a procedure letter which will be found in the "Test Procedure" section.

IMPORTANT: If the oven becomes inoperative because of a blown C/T fuse, check the monitor switch, relay (RY1) primary interlock relay (RY2), door sensing switch and secondary interlock switch before replacing the C/T fuse. If C/T fuse is replaced, the monitor switch must also be replaced. Use part FFS-BA020WRK0 as an assembly.

IMPORTANT: Whenever troubleshooting is performed with the power supply cord disconnected. It may in, some cases, be necessary to connect the power supply cord after the outer case has been removed, in this event,

1. Disconnect the power supply cord, and then remove outer case.
2. Open the door and block it open.
3. Discharge high voltage capacitor.
4. Disconnect the leads to the primary of the power transformer.
5. Ensure that the leads remain isolated from other components and oven chassis by using insulation tape.
6. After that procedure, reconnect the power supply cord.

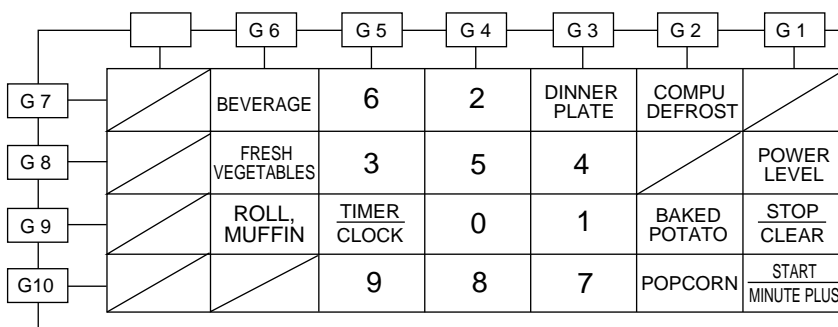
When the testing is completed,

1. Disconnect the power supply cord, and then remove outer case.
2. Open the door and block it open.
3. Discharge high voltage capacitor.
4. Reconnect the leads to the primary of the power transformer.
5. Reinstall the outer case (cabinet).
6. Reconnect the power supply cord after the outer case is installed.
7. Run the oven and check all functions.

TEST PROCEDURES (CONT'D)

| PROCEDURE LETTER | COMPONENT TEST |
|---------------------|----------------------|
| J | KEY UNIT TEST |

1. Disconnect the power supply cord and then remove outer case.
2. Open the door and block it open.
3. Discharge high voltage capacitor.
4. If the display fails to clear when the STOP/CLEAR pad is depressed, first verify the flat ribbon cable is making good contact, verify that the door sensing switch (stop switch) operates properly; that is the contacts are closed when the door is closed and open when the door is open. If the door sensing switch (stop switch) is good, disconnect the flat ribbon cable that connects the key unit to the control unit and make sure the door sensing switch is closed (either close the door or short the door sensing switch connector). Use the Key unit matrix indicated on the control panel schematic and place a jumper wire between the pins that correspond to the STOP/CLEAR pad making momentary contact. If the control unit responds by clearing with a beep the key unit is faulty and must be replaced. If the control unit does not respond, it is faulty and must be replaced. If a specific pad does not respond, the above method may be used (after clearing the control unit) to determine if the control unit or key pad is at fault.
5. Reconnect all leads removed from components during testing.
6. Re-install the outer case (cabinet).
7. Reconnect the power supply cord after the outer case is installed.
8. Run the oven and check all functions.



| | |
|----------|---------------------------|
| L | COMPU DEFROST TEST |
|----------|---------------------------|

- (1) Place one cup of water in the center of the turntable tray in the oven cavity.
- (2) Close the door, touch the "COMPU DEFROST" pad once and touch the Number pad "5". And then touch the "START" pad.
- (3) The oven is in Compu Defrost cooking condition.
- (4) The oven will operate as follows.

| WEIGHT | 1ST STAGE | | 2ND STAGE | | 3RD STAGE | |
|--------|-----------|-------------|-----------|-------------|-----------|------------|
| | LEVEL | TIME | LEVEL | TIME | LEVEL | TIME |
| 0.5lb | 50% | 1min.25sec. | 30% | 1min.40sec. | 10% | 1min.2sec. |

- (5) If improper operation is indicated, the control unit is probably defective and should be checked.

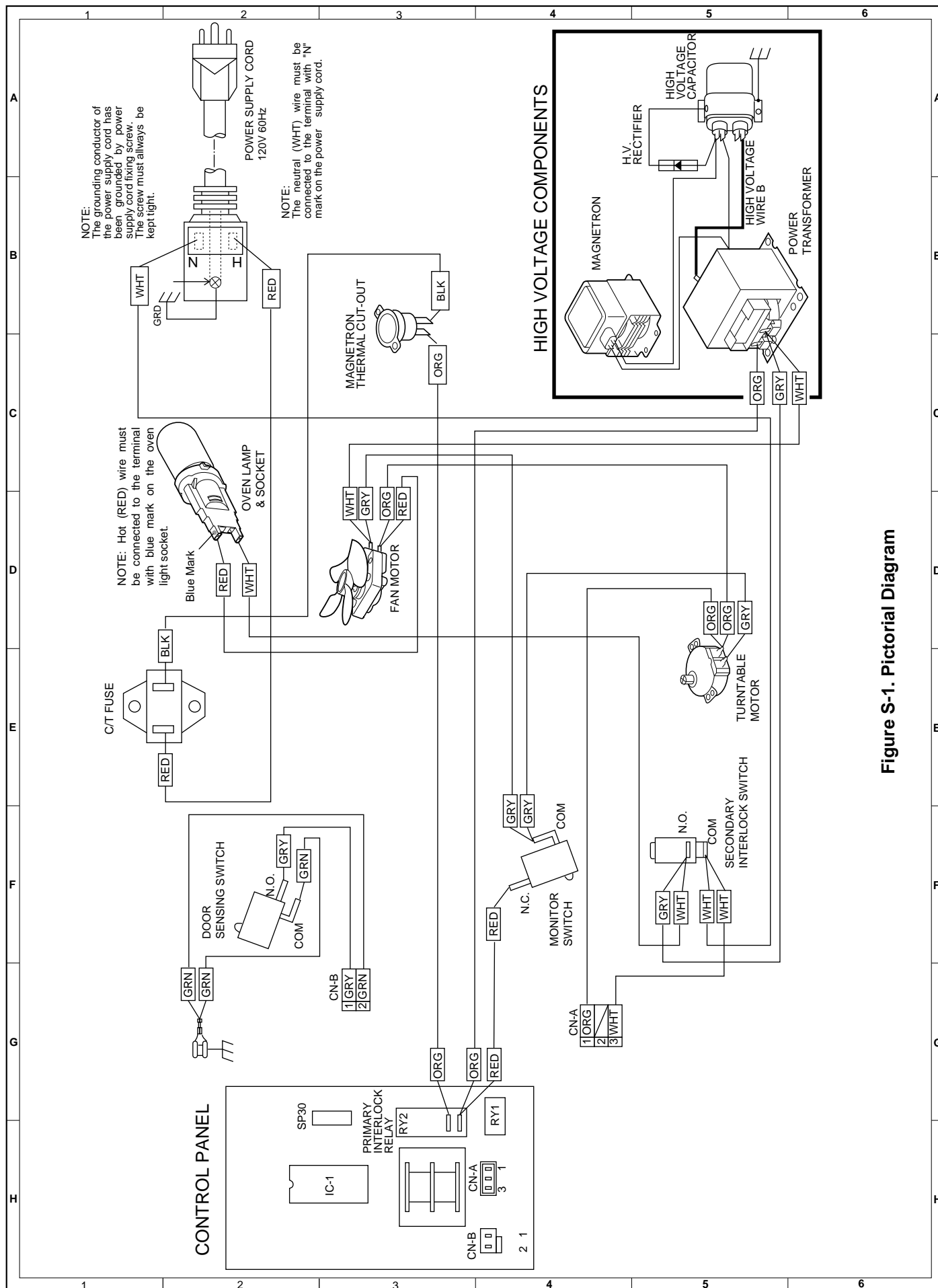


Figure S-1. Pictorial Diagram

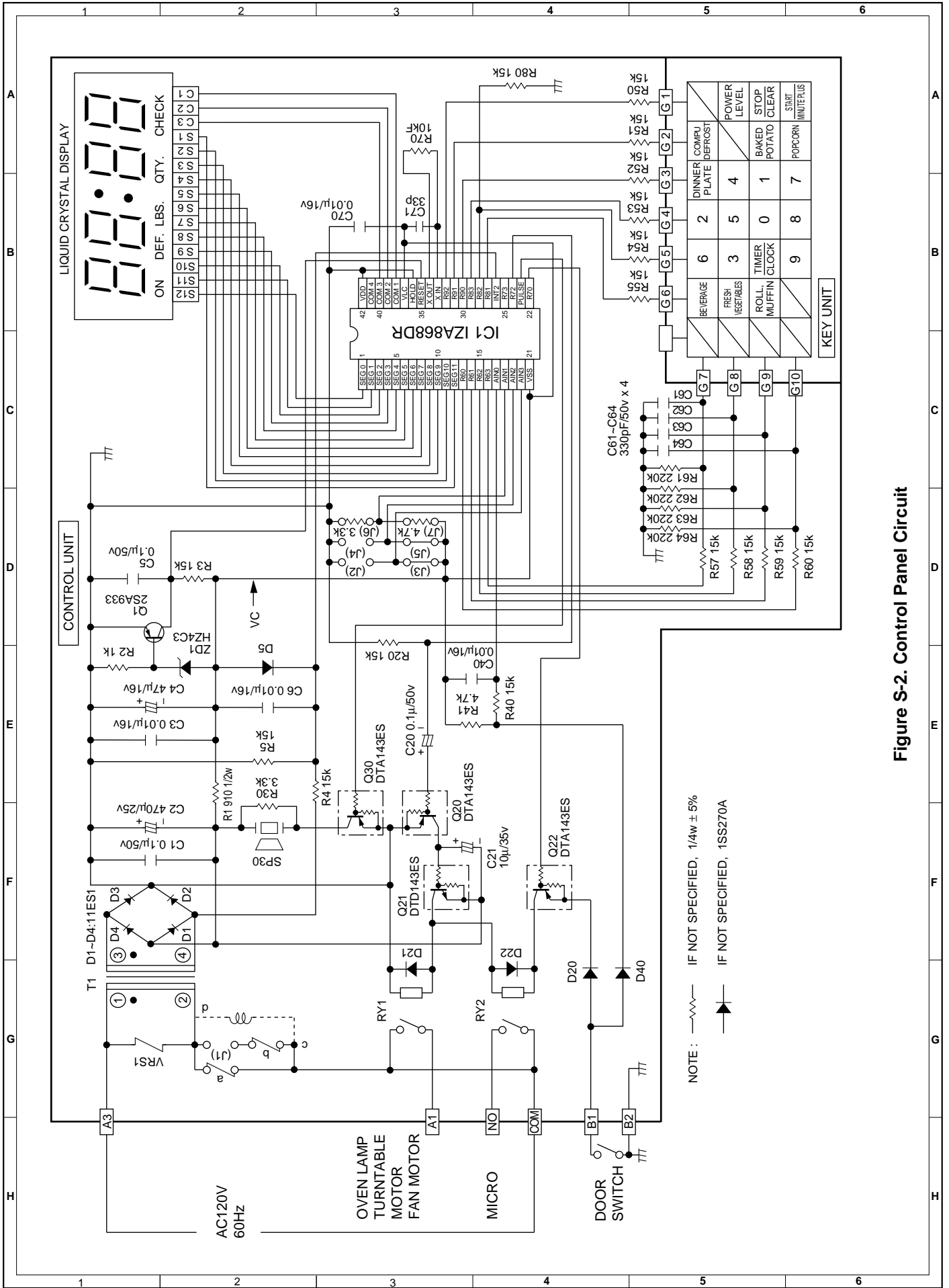


Figure S-2. Control Panel Circuit

PARTS LIST

Note: The parts marked “Δ” may cause undue microwave exposure.

The parts marked “*” are used in voltage more than 250V.

| REF. NO. | PART NO. | DESCRIPTION | Q'TY | CODE |
|----------|----------|-------------|------|------|
|----------|----------|-------------|------|------|

ELECTRIC PARTS

| | | | | |
|---------|----------------|--|---|----|
| 1- 1 | QSW-MA131WRE0 | Secondary interlock switch & door sensing switch | 2 | AG |
| 1- 2 | FFS-BA020WRK0 | C/T fuse & monitor switch assembly | 1 | AP |
| 1- 3 | FACCDAA040WRE0 | Power supply cord | 1 | AS |
| 1- 4 | QSOCLA021WRE0 | Oven lamp socket | 1 | AH |
| * 1- 5 | FH-DZA081WRK0 | High voltage rectifier | 1 | AQ |
| * 1- 6 | RC-QZA200WRE0 | High voltage capacitor | 1 | AV |
| * 1- 6 | RC-QZA201WRE0 | High voltage capacitor (Interchangeable) | 1 | AW |
| 1- 7 | RMOTEA338WRE0 | Fan motor | 1 | AV |
| 1- 7 | RMOTEA355WRE0 | Fan motor (Interchangeable) | 1 | AU |
| *Δ 1- 8 | RV-MZA282WRE0 | Magnetron | 1 | BP |
| *Δ 1- 8 | RV-MZA226WRE0 | Magnetron (Interchangeable) | 1 | BE |
| 1- 9 | RLMPTA030WRE0 | Oven lamp | 1 | AF |
| 1-10 | RMOTDA186WRE0 | Turntable motor | 1 | AW |
| 1-10 | RMOTDA211WRE0 | Turntable motor (Interchangeable) | 1 | AS |
| 1-11 | RTHM-A078WRE0 | Thermal cut-out 125°C | 1 | AK |
| * 1-12 | RTRN-A561WRE0 | Power transformer | 1 | BM |

CABINET PARTS

| | | | | |
|------|---------------|------------------------------|---|----|
| 2- 1 | GCABUA657WRP0 | Outer case cabinet [R-230BK] | 1 | AX |
| 2- 1 | GCABUA659WRP0 | Outer case cabinet [R-230BW] | 1 | AX |
| 2- 2 | GDAI-A304WRP0 | Bottom plate | 1 | AU |
| 2- 3 | GLEGPA074WRE0 | Foot | 2 | AC |

CONTROL PANEL PARTS

| | | | | |
|--------|---------------|------------------------|---|----|
| 3- 1 | CPWBFA773WRK0 | Control unit [R-230BK] | 1 | BL |
| 3- 1A | QCNCMA431DRE0 | 2-pin connector (A) | 1 | AC |
| 3- 1B | QCNCMA275DRE0 | 2-pin connector (B) | 1 | AB |
| C1 | RC-KZA087DRE0 | Capacitor 0.1 uF 50V | 1 | AB |
| C2 | VCEAB31EW477M | Capacitor 470 uF 25V | 1 | AC |
| C3 | VCKYD11CY103N | Capacitor 0.01 uF 16V | 1 | AH |
| C4 | VCEAB31CW476M | Capacitor 47 uF 16V | 1 | AA |
| C5 | RC-KZA087DRE0 | Capacitor 0.1 uF 50V | 1 | AB |
| C6 | VCKYD11CY103N | Capacitor 0.01 uF 16V | 1 | AH |
| C20 | VCEAB31HW104M | Capacitor 0.1 uF 50V | 1 | AB |
| C21 | VCEAB31VW106M | Capacitor 10 uF 35V | 1 | AB |
| C40 | VCKYD11CY103N | Capacitor 0.01 uF 16V | 1 | AH |
| C61-64 | VCKYD11HB331K | Capacitor 330 pF 50V | 4 | AA |
| C70 | VCKYD11CY103N | Capacitor 0.01 uF 16V | 1 | AH |
| C71 | VCCCF61HH330J | Capacitor 33 pF 50V | 1 | AB |
| D1-4 | VHD11ES1///-1 | Diode (11ES1) | 4 | AB |
| D5 | VHD1SS270A/-1 | Diode (1SS270A) | 1 | AA |
| D20-22 | VHD1SS270A/-1 | Diode (1SS270A) | 3 | AA |
| D40 | VHD1SS270A/-1 | Diode (1SS270A) | 1 | AA |
| IC1 | RH-IZA868DRE0 | LSI | 1 | AN |
| Q1 | VS2SA933S/-3 | Transistor (2SA933) | 1 | AB |
| Q20 | VSDTA143ES/-3 | Transistor (DTA143ES) | 1 | AB |
| Q21 | VSDTD143ES/-3 | Transistor (DTD143ES) | 1 | AC |
| Q22 | VSDTA143ES/1B | Transistor (DTA143ES) | 1 | AB |
| Q30 | VSDTA143ES/-3 | Transistor (DTA143ES) | 1 | AB |
| R1 | VRD-B12HF911J | Resistor 910 ohm 1/2W | 1 | AA |
| R2 | VRD-B12EF102J | Resistor 1.0k ohm 1/4W | 1 | AA |
| R3-5 | VRD-B12EF153J | Resistor 15k ohm 1/4W | 3 | AA |
| R20 | VRD-B12EF153J | Resistor 15k ohm 1/4W | 1 | AA |
| R30 | VRD-B12EF332J | Resistor 3.3k ohm 1/4W | 1 | AA |
| R40 | VRD-B12EF153J | Resistor 15k ohm 1/4W | 1 | AA |
| R41 | VRD-B12EF472J | Resistor 4.7k ohm 1/4W | 1 | AA |
| R50-55 | VRD-B12EF153J | Resistor 15k ohm 1/4W | 6 | AA |
| R57-60 | VRD-B12EF153J | Resistor 15k ohm 1/4W | 4 | AA |
| R61-64 | VRD-B12EF224J | Resistor 220k ohm 1/4W | 4 | AA |
| R70 | VRN-B12EK103F | Resistor 10k ohm 1/4W | 1 | AA |
| R80 | VRD-B12EF153J | Resistor 15k ohm 1/4W | 1 | AA |
| (J6) | VRD-B12EF332J | Resistor 3.3k ohm 1/4W | 1 | AA |
| (J7) | VRD-B12EF472J | Resistor 4.7k ohm 1/4W | 1 | AA |
| RY1 | RRLY-A111DRE0 | Relay (JV12S-KT) | 1 | AL |
| RY2 | RRLY-A094DRE0 | Relay (OMIF-S-112LM) | 1 | AN |
| SP30 | RALM-A014DRE0 | Buzzer (PKM22EPT-CA) | 1 | AG |
| T1 | RTRNPA110DRE0 | Transformer | 1 | AN |
| VRS1 | RH-VZA032DRE0 | Varistor (10G471K) | 1 | AE |
| ZD1 | VHEHZ4C3///-1 | Zener diode (HZ4C-3) | 1 | AA |

| REF. NO. | PART NO. | DESCRIPTION | Q'TY | CODE |
|----------|---------------|---|------|------|
| 3- 2 | FPNLCB366WRK0 | Control panel frame with key unit and LCD [R-230BK] | 1 | BF |
| 3- 2 | FPNLCB367WRK0 | Control panel frame with key unit and LCD [R-230BW] | 1 | BF |
| 3- 2-1 | FUNTKA862WRE0 | Key unit [R-230BK] | 1 | BD |
| 3- 2-1 | FUNTKA863WRE0 | Key unit [R-230BW] | 1 | BD |
| 3- 2-2 | RLCDSA045DRE0 | Liquid crystal display | 1 | AM |
| 3- 3 | QCNC-A012WRE0 | Rubber connector | 1 | AF |
| 3- 4 | XEPSD30P08XS0 | Screw; Control unit mtg. | 4 | AA |

OVEN PARTS

| | | | | | |
|---|------|---------------|------------------------------------|---|----|
| Δ | 4- 1 | PHOK-A105WRF0 | Latch hook | 1 | AL |
| | 4- 2 | LANGQA477WRW0 | Light mount plate | 1 | AY |
| | 4- 3 | PCUSUA502WRP0 | Waterproof cushion | 1 | AD |
| | 4- 4 | LBNDKA038WRP0 | Capacitor holder | 1 | AF |
| | 4- 5 | NFANJA029WRE0 | Fan blade | 1 | AL |
| | 4- 6 | PDUC-A694WRF0 | Fan duct | 1 | AG |
| Δ | 4- 7 | ***** | Oven cavity (Not replaceable part) | 1 | -- |
| | 4- 8 | GLEGPA073WRF0 | Leg | 1 | AD |
| | 4- 9 | LANGTA318WRP0 | Chassis support | 1 | AE |
| | 4-10 | PCUSGA389WRP0 | Cushion | 1 | AG |
| | 4-11 | PCOVPA276WRE0 | Waveguide cover | 1 | AM |
| | 4-12 | PCOVPA342WRF0 | B-cover Right | 1 | AH |
| | 4-13 | PCOVPA343WRF0 | B-cover Left | 1 | AH |
| | 4-14 | PCUSUA443WRP0 | Cushion | 1 | AE |
| | 4-15 | PDUC-A700WRF0 | Air separator | 1 | AN |
| | 4-16 | PPACGA097WRE0 | O-ring | 1 | AG |
| | 4-17 | PCUSUA270WRP0 | Cushion | 1 | AG |

DOOR PARTS

| | | | | | |
|---|------|---------------|----------------------|---|----|
| Δ | 5- 1 | FDORFA321WRT0 | Door panel | 1 | AT |
| | 5- 2 | GWAKPA552WRF0 | Door frame [R-230BK] | 1 | AY |
| | 5- 2 | GWAKPA551WRF0 | Door frame [R-230BW] | 1 | AY |
| | 5- 3 | HPNL-A686WRR0 | Door screen | 1 | AY |
| Δ | 5- 4 | LSTPPA175WRF0 | Latch head | 1 | AE |
| | 5- 5 | MSPRTA084WRE0 | Latch spring | 1 | AB |
| | 5- 6 | PSHEPA622WRE0 | Sealer film | 1 | AG |
| | 5- 7 | GCOVHA390WRF0 | Choke cover | 1 | AK |
| | 5- 8 | XCPSD40P08000 | Screw : 4mm x 8mm | 4 | AA |

MISCELLANEOUS

| | | | | | |
|---|------|---------------|------------------------------|---|----|
| | 6- 1 | FROLPA085WRK0 | Turntable support | 1 | AS |
| | 6- 2 | NTNT-A094WRE0 | Turntable | 1 | AN |
| | 6- 3 | TINS-A645WRR0 | Instruction book | 1 | AE |
| | 6- 4 | FW-VZB657WRE0 | Switch harness | 1 | AH |
| | 6- 5 | FW-VZB658WRE0 | Main wire harness | 1 | AV |
| * | 6- 6 | QW-QZA150WRE0 | High voltage wire B | 1 | AF |
| | 6- 7 | TCAUAA166WRR0 | DHHS caution label | 1 | AC |
| | 6- 8 | TCAUAA100WRR0 | User caution label [R-230BK] | 1 | AC |
| | 6- 8 | TCAUAA156WRR0 | User caution label [R-230BW] | 1 | AF |
| | 6- 9 | TCAUAA239WRR0 | Monitor caution | 1 | AC |
| | 6-10 | TCAUAA145WRR0 | Earth caution | 2 | AG |
| | 6-11 | TCAUAA240WRR0 | Screw caution | 1 | AC |

SCREWS AND WASHERS

| | | | | | |
|--|------|---------------|---|---|----|
| | 7- 1 | XFPSD40P08K00 | Screw : 4mm x 8mm | 5 | AA |
| | 7- 2 | LX-EZA042WRE0 | Special screw | 2 | AB |
| | 7- 3 | LX-WZA028WRE0 | Special washer | 1 | AB |
| | 7- 4 | LX-CZA030WRE0 | Special screw | 5 | AA |
| | 7- 5 | XHTSD40P08RV0 | Screw : 4mm x 8mm | 4 | AA |
| | 7- 6 | XHPSD30P06000 | Screw : 3mm x 6mm | 1 | AA |
| | 7- 7 | XOTSD40P12RV0 | Screw : 4mm x 12mm | 2 | AA |
| | 7- 8 | XOTSD40P12000 | Screw : 4mm x 12mm | 6 | AA |
| | 7- 9 | XOTSF40P08000 | Screw : 4mm x 8mm [R-230BK] | 4 | AA |
| | 7- 9 | XOTSE40P08000 | Screw : 4mm x 8mm [R-230BW] | 4 | AA |
| | 7-10 | LX-CZA071WRE0 | Special screw (Torx tamper proof screw) | 2 | AC |

HOW TO ORDER REPLACEMENT PARTS

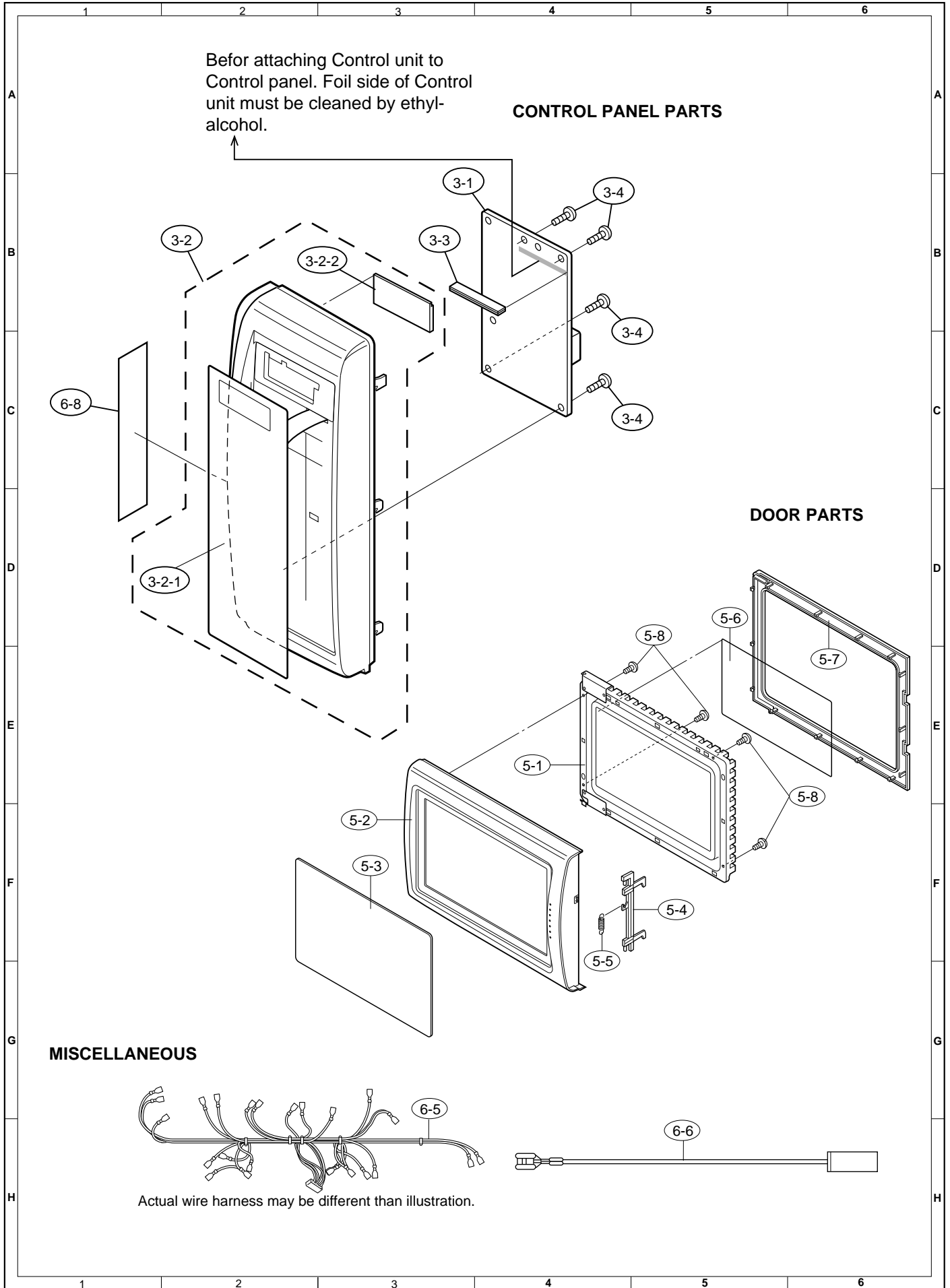
To have your order filled promptly and correctly, please furnish the following information.

1. MODEL NUMBER 2. REF. NO. 3. PART NO. 4. DESCRIPTION

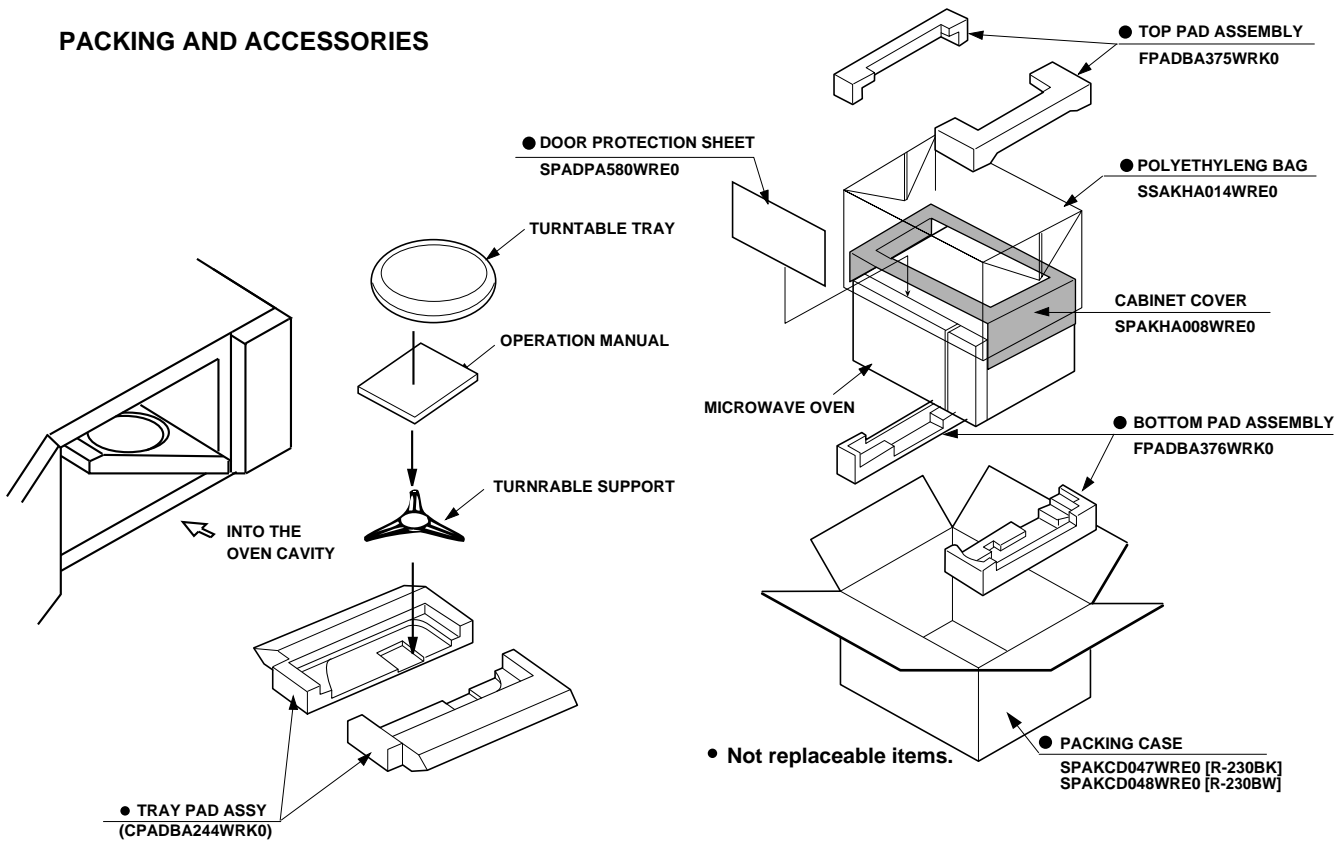
Order Parts from the authorized SHARP parts Distributor for your area.

Defective parts requiring return should be returned as indicated in the Service Policy.





PACKING AND ACCESSORIES



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